



## IV. Application

### A. Variation

- Click on the "Variation" site.
- The "aa" index is used to measure the geomagnetic disturbances on Earth.



1. What does the graph seem to tell us about the average number of geomagnetic disturbances? \_\_\_\_\_
2. Besides the explanation that there are more disturbances, what other explanation is possible to explain the fact that the number of disturbances measured is increasing?

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- Click "Back" until you get back to the OAR Solar Events Application site.

### **B. Cost vs. Cost**



- Click on the "University of Michigan Solar Storm Cost" site.



1. What kinds of problems can be avoided if power companies get early warnings of coming geomagnetic storms?

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- Click "Back" until you get back to the OAR Solar Events Application site.



- Click on the "Start-Up Problem" site.



2. Why should you turn off your electric appliances whenever there is a power failure?

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- Click "Back" until you get back to the OAR Solar Events Application site.

### **C. International Accord**



1. Explain why the cost of maintaining an early warning system for geomagnetic storms is justified.

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2. Why should all industrialized nations work together to set up the warning system?

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- Click "Back" until you get back to the OAR Solar Events main screen.
- Click "Enrichment."



## V. Enrichment Activities

### A. Research

1. Research the Aurora Borealis. Find out when, where, and how they occur. Draw a diagram showing the areas on Earth where they occur most often.
2. Research when the next solar eclipse will be. What locations on Earth will see a total eclipse? a partial eclipse?
3. Research Earth's escape velocity. What is it and how is it different from the Sun's escape velocity? Ideally, satellites would be launched from the equator. What difference does it make where you launch a satellite from?
4. Find out about ancient cultures and how they created calendars and measured time based on the sun.



### B. Interviews

1. Interview an astronomer at a local planetarium about locally-seen eclipses.
2. Work in groups and list all the songs you can think of that mention the sun.



### C. Related Web Sites

1. NASA eclipse page  
<http://umbra.nascom.nasa.gov/eclipse/>
2. List of 1998 eclipses, meteor showers, and other phenomena  
<http://www.sec.noaa.gov/ises/calendar/1998igc1.html>
3. List of eclipses for the next ten years  
[http://www.ips.gov.au/papers/richard/solar\\_eclipse.html](http://www.ips.gov.au/papers/richard/solar_eclipse.html)
4. National Geophysical Data Center site on geomagnetic data  
<http://www.ngdc.noaa.gov/seg/potfld/geomag.html>
5. Technically oriented National Geophysical Data Center site on cosmic rays  
[http://www.ngdc.noaa.gov/stp/SOLAR/COSMIC\\_RAYS/cosmic.html](http://www.ngdc.noaa.gov/stp/SOLAR/COSMIC_RAYS/cosmic.html)